

Illinois Commerce Commission

Assessment of

MidAmerican Energy Company's

Annual Reliability Report and

Electric Service Reliability

For Calendar Year 2004

Pursuant to 83 Ill. Adm. Code 411.140

2005

1. Executive Summary

Pursuant to Section 16-125 of the Illinois Public Utilities Act and the Commission's electric reliability rules as found in 83 Illinois Administrative Code, Part 411 ("Part 411"), MidAmerican Energy Company ("MEC" or "MidAmerican") filed its annual electric reliability report for the 2004 calendar year. The annual reliability report MEC filed for calendar year 2004 was organized to sequentially follow the reporting requirements of Part 411, and complied with the requirements found therein.

During 2004, MEC's system average interruption frequency index ("SAIFI") and customer average interruption frequency index ("CAIFI") were among the highest (worst) reported by Illinois utilities, while MEC's customer average interruption duration index ("CAIDI") was the lowest (best) reported. A comparison of the reliability indices that were reported for the 2004 calendar year shows that MEC's customers, on average, experienced more but shorter interruptions than customers of most other utilities. Staff is very concerned that MEC has reported some of the state's highest SAIFI and CAIFI values in recent years. At the same time Staff is pleased and impressed with MEC's low CAIDI values for the same period, indicating MEC typically provides relatively fast restoration of service to customers after service interruptions occur.

During the summer of 2005, Staff inspected three of MEC's distribution circuits that had relatively high SAIFI values during 2004. Staff found several locations where MEC's distribution facilities appeared to be in a deteriorated condition. Staff also noted two National Electrical Safety Code clearance violations, where MEC's conductors had inadequate ground clearance. MEC promptly modified its facilities at both locations to obtain the required clearances. Staff provided MEC with a summary of its inspection findings for each circuit inspected.

After reviewing MEC's reliability report and inspecting its circuits, Staff recommends that MEC: conduct more frequent inspections of its overhead distribution lines and respond to its inspection findings with corrective actions more promptly; increase animal guard coverage in problem areas; and re-emphasize with its tree trimming personnel that trees must be cleared away from its distribution circuits so that the trees do not contact the power lines prior to being trimmed again.

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2. Introduction

This document assesses the reliability report that MidAmerican Energy Company ("MEC" or "MidAmerican") filed, and evaluates MEC's reliability performance for the 2004 calendar year.

Beginning with the year 1999 and at least every three years thereafter, 83 Illinois Administrative Code Part 411.140 requires the Commission to assess the annual reliability report of each jurisdictional entity and evaluate the entity's reliability performance. Code Part 411.140 requires the Commission evaluation to:

- A) Assess the reliability report of each entity.
- B) Assess the jurisdictional entity's historical performance relative to established reliability targets.
- C) Identify trends in the jurisdictional entity's reliability performance.
- D) Evaluate the jurisdictional entity's plan to maintain or improve reliability.
- E) Identify, assess, and make recommendations pertaining to any potential reliability problems and risks that the Commission has identified as a result of its evaluation.
- F) Include a review of the jurisdictional entity's implementation of its plan for the previous reporting period.

3. Customers and Service Territory

In 2004, MEC provided electric service to nearly 84,000 Illinois customers. MEC's Illinois service territory includes the urban areas near the Quad Cities and the rural areas that surround them, including several smaller communities such as Sherrard, Orion and Reynolds.

4. Description of Distribution System

MEC's distribution system in Illinois is made up of 13.2 and 4kV circuits. These circuits are supplied by MEC's own 345kV, 161kV and 69kV transmission system.

Subsection 411.120(b)(3)(G) requires MEC to report on the age and condition of its distribution and transmission facilities. MEC indicated the average age of its substation equipment is 24 years; the average age of its poles and fixtures is 32 years; the average age of its distribution transformers is 23 years; and the average age of its underground conductors and devices is 21 years.

MEC stated it schedules a complete patrol and inspection of each distribution circuit on a 10-year cycle, and that follow-up maintenance and construction is performed as required. MEC also stated that it notes and addresses problems on its distribution circuits that are found by tree trimmers or during periodic inspection of line equipment, such as capacitors, reclosers, and voltage regulators. Based on the results of its various inspections and follow-up maintenance and construction activity, MEC concluded its facilities are adequately constructed, inspected, and maintained to provide safe and reliable service to its Illinois customers.

5. Assessment of Company's Reliability Report

83 Illinois Administrative Code Part 411.120(b) requires each non-exempt jurisdictional entity to file an annual reliability report for the previous calendar year by June 1 of the current year. MEC's 2004 reliability report was filed on schedule. At Staff's request MEC revised Supplement Attachment A to its reliability report to include required information that was missing from the report it filed. After its July 15 revision, MEC's reliability report contained all the information necessary to comply with Subsection 411.120(b)(3) requirements. Staff found that MEC's reliability report was organized in a logical manner so that finding information within the report and the attachments was not difficult. In particular, Staff noted that MEC did a very good job describing progress on specific projects it had listed in its previous year's reliability report.

6. Historical Performance Relative to Established Reliability Targets

Code Part 411.140(b)(4)(A-C) establishes electric service reliability targets that jurisdictional entities (utilities) must strive to meet. These targets specify limitations on customer interruptions as well as hours of interruption that a utility must strive not to exceed on a per customer basis. Code Part 411.120(b)(3)(L) requires each utility to provide a list of every customer, identified by a unique number, who experienced interruptions in excess of the service reliability targets, the number of interruptions and interruption duration experienced in each of the three preceding years, and the number of consecutive years in which the customer has experienced interruptions in excess of the service reliability targets.

In April 2004, all regulated Illinois electric utilities agreed to report on all interruptions (controllable and uncontrollable) in relation to the service reliability targets for the reporting periods of 2003 through 2007, and to include the specific actions, if any, that the utility plans or has taken to address the customer reliability concerns. The customer service reliability targets are listed in Table 1:

Table 1: Service Reliability Targets

| Immediate primary source of service operation voltage | Maximum number of interruptions in each of the last three years | Maximum hours of total interruption duration in each of the last three years |
|---|---|--|
| 69kV or above | 3 | 9 |
| Between 15kV & 69kV | 4 | 12 |
| 15kV or below | 6 | 18 |

In Supplement Attachment A to its reliability report MEC indicated that in 2004, 175 of its Illinois customers experienced interruptions in excess of the targets (+/- .21% of its Illinois customers). These 175 customers were supplied by 3 different circuits and all experienced interruptions that exceeded the quantity reliability target (more than 6 interruptions for at least 3 consecutive years). 38 of the 175 customers experienced interruptions with durations longer than 18 hours during either 1 or 2 years, but none of experienced interruptions that exceeded the duration reliability target for 3 consecutive years. In its previous reliability report MEC stated only 2 of its customers experienced interruptions that exceeded the reliability targets, and in both cases it was the duration target that was exceeded.

Subsection 411.140(b)(4)(D) requires the Commission's assessment to determine if MEC has a process in place to identify, analyze, and correct service reliability for customers who experience a number or duration of interruptions that exceeds the reliability targets. Staff is satisfied that MEC can identify and analyze the service reliability for customers who experience interruptions that exceed the targets; however MEC did not demonstrate to Staff it has a process in place to correct service reliability for these customers:

- MEC listed 13 customers supplied by Circuit 13-105-2 that experienced interruptions that exceeded reliability targets. MEC stated weather was the dominant interruption cause during 2003-2004, and in 2002 the dominant interruption cause was animals and trees. MEC indicated it is relying upon its regularly scheduled tree trimming to improve service to these customers. MEC last completed its scheduled tree trimming of this circuit in December of 2003. Staff noted the 13 customers experienced 14 interruptions and more than 36 hours of interruption time during 2004 after MEC had just completed its regularly scheduled trim. It appears that if MEC intends to improve service to these 13 customers corrective actions in addition to tree trimming will be required.
- MEC listed 26 customers supplied by Circuit 13-101-2 that experienced interruptions that exceeded reliability targets, including 4 customers that experience 9 interruptions during 2004, and one customer that experienced more than 24 hours of interruption durations during 2004. MEC stated weather was the dominant interruption cause during 2002-2003, and transmission supply outages were the dominant cause during 2004. MEC stated 22 of the 26 customers were located beyond 3 individual fused taps, and that it plans to install 2 reclosers ahead of two of the fused taps in 2005. The two reclosers may reduce the number of sustained interruptions to some customers beyond fuses, so that these customers experience momentary interruptions instead. However, MEC did not indicate any improvements for its distribution system to reduce the number of sustained interruptions for the other customers unaffected by the 2 new reclosers.
- Circuit 13-102-3 supplied the remaining 136 customers that experienced interruptions that exceeded Part 411 reliability targets. MEC stated weather and equipment problems were the dominant interruption causes during 2002-2003, and transmission supply outages was the dominant cause during 2004. MEC did not indicate it planned to make any changes to its distribution system to improve service to these 136 customers.

When interruptions to the same customer(s) and/or geographic area re-occur, Staff suggests MEC promptly inspect its distribution facilities that supply the affected area, and take prompt follow-up action to remove any additional threats to reliable service that it finds, even if the threats do not relate to the interruptions that have already occurred. Then MEC would have taken steps to minimize the number of its customers that experience interruptions in excess of Part 411 reliability targets.

7. Analysis of Reliability Performance

Reliability indices can be used to compare the reliability performance of several utilities, and provide an indication of whether an individual utility's performance is improving or degrading over time. Since each reporting utility uses its own reporting and recording methods, direct reliability index comparisons between utilities are not exact, but can still be informative. When comparing the indices reported by all the utilities that filed reliability reports for 2004, Staff observed:

- MEC's SAIFI of 2.03 was the 2nd highest reported for 2004: about 42% higher than the average of the values reported by the other eight utilities.
- MEC's CAIDI of 70 was the lowest reported for 2004: about 60% lower than the average of the values reported by the other eight utilities.
- MEC's CAIFI of 2.72 was the 2nd highest reported for 2004: about 36% higher than the average of the values reported by the other eight utilities.

Table 2 (a-c) shows the SAIFI, CAIDI, and CAIFI indices for 2004 as submitted by each reporting utility. Each index table is sorted from best to worst performance:

Table 2: Year 2003 Reliability Indices for Reporting Utilities

a) SAIFI

| UTILITY | SAIFI |
|--------------------|-------------|
| South Beloit | 0.61 |
| IPL | 0.64 |
| ComEd | 1.21 |
| AmerenCILCO | 1.45 |
| AmerenIP | 1.49 |
| AmerenCIPS | 1.66 |
| AmerenUE | 1.69 |
| MidAmerican | 2.03 |
| Mt. Carmel | 2.69 |

b) CAIDI

| UTILITY | CAIDI |
|--------------------|-----------|
| MidAmerican | 70 |
| IPL | 77 |
| South Beloit | 96 |
| ComEd | 128 |
| AmerenCIPS | 143 |
| Mt. Carmel | 177 |
| AmerenCILCO | 247 |
| AmerenIP | 268 |
| AmerenUE | 278 |

c) CAIFI

| UTILITY | CAIFI |
|--------------------|-------------|
| South Beloit | 1.35 |
| IPL | 1.40 |
| ComEd | 2.00 |
| AmerenCIPS | 2.01 |
| AmerenCILCO | 2.03 |
| AmerenUE | 2.05 |
| AmerenIP | 2.26 |
| MidAmerican | 2.72 |
| Mt. Carmel | 2.86 |

$$\text{SAIFI} = \frac{\text{Total \# Customer Interruptions}}{\text{Total \# Customer Served}}$$

$$\text{CAIDI} = \frac{\text{Sum of all Interruption Durations}}{\text{Total \# Customer Interruptions}}$$

$$\text{CAIFI} = \frac{\text{Total \# Customer Interruptions}}{\text{Total \# Customers Affected}}$$

MEC stated it had no Illinois customers receiving power from another jurisdictional entity such as an ARES during 2004, so a comparison of interruption frequency and duration for customers buying from MEC versus buying from an ARES is not feasible.

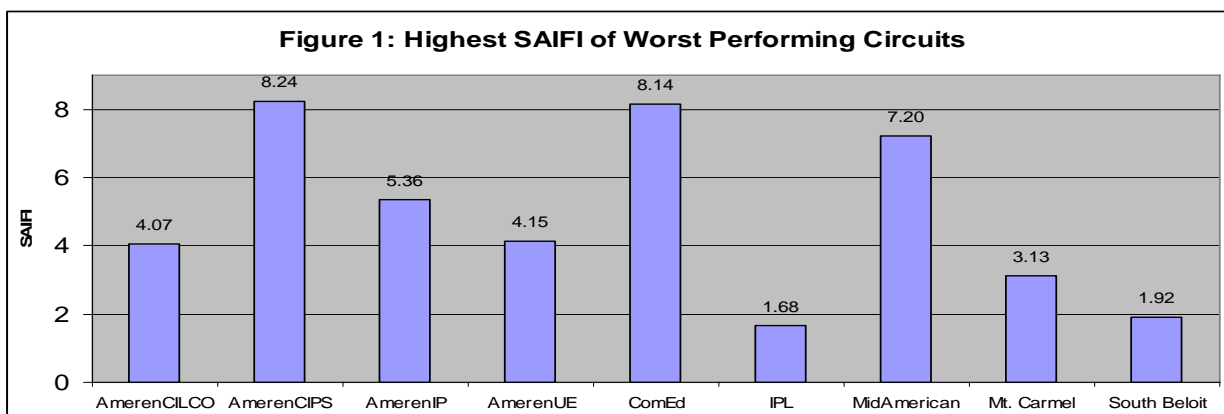
The results of an annual independent survey indicate that for 2004, MEC's residential customers gave MEC a mean reliability score of 8.4 out of 10, and its non-residential customers gave MEC a mean reliability score of 8.75 out of 10. MEC stated that it had no unresolved complaints from customers during 2004. Data within MEC's reliability report indicated the number of MEC's customer complaints relating to excessive outage frequency had increased by 150% from 2003 to 2004 and 74% from 2002 to 2003.

Worst Performing Circuits

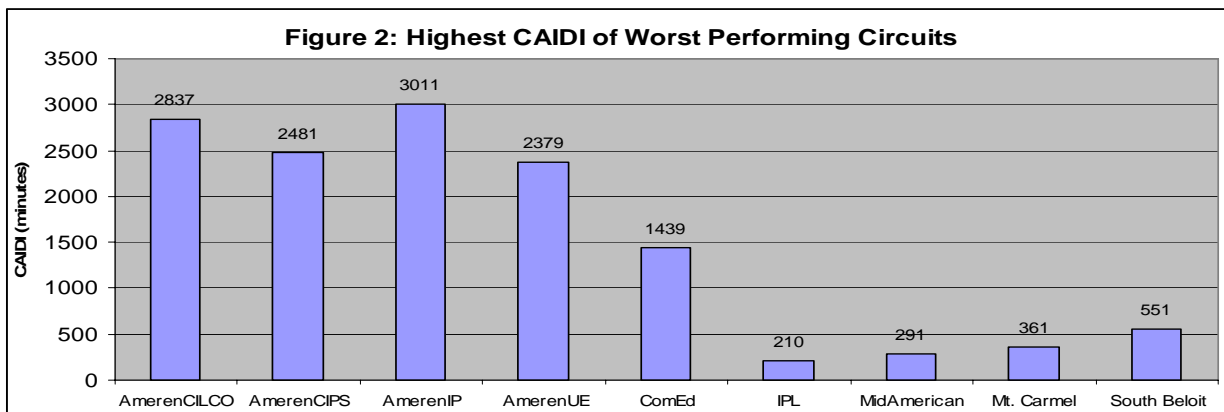
Section 411.120 requires utilities to report worst performing circuits and state corrective actions taken or planned to improve the performance of those circuits. Worst performing circuits for each reporting utility are its 1% of circuits that had the highest SAIFI, CAIDI, and CAIFI during the report year. MEC reported only 2 different circuits as worst performing circuits during 2004 because the same circuit (Circuit 13-46-1) was its worst performing circuit for both SAIFI and CAIFI.

A utility must report worst performing circuits even if all its circuits performed fairly well during the year: the Part 411 requirement is simply that the utility report its circuits that performed the worst based on each index. Comparing the index values for worst-case circuits from utility to utility can be useful when assessing the relative performance of several utilities.

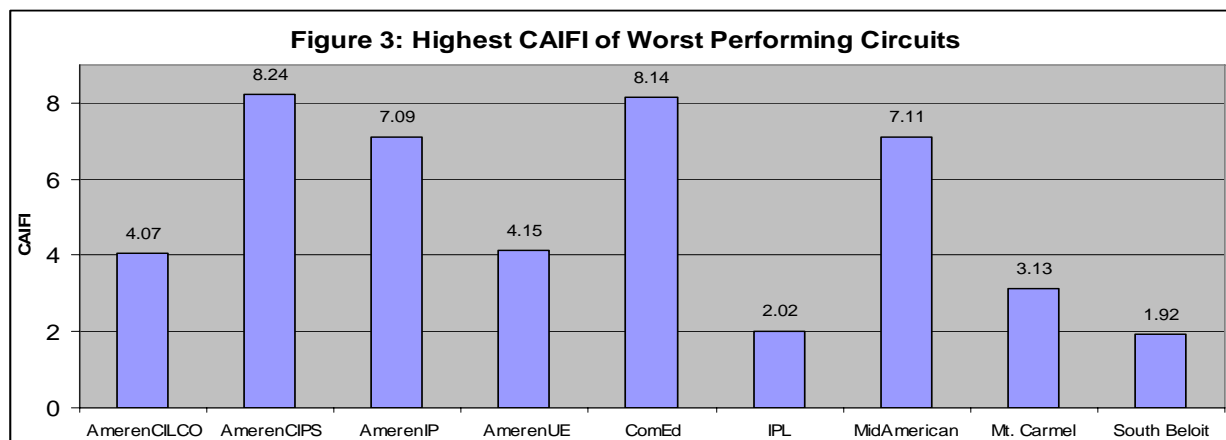
- The highest values of SAIFI (worst performance) reported for an individual distribution circuit during 2004 ranged from 1.68 (Interstate Power and Light, or IPL) to 8.24 (AmerenCIPS), as illustrated by Figure 1. MEC's highest SAIFI for an individual circuit in 2004 (7.20) was the third highest (worst) reported, slightly better than the worst-case circuits of AmerenCIPS and ComEd.



- The highest value of CAIDI reported for an individual distribution circuit during 2004 ranged from 210 (IPL) to 3011 (AmerenIP), as illustrated by Figure 2. MEC's highest CAIDI for an individual circuit in 2004 (291) was the 2nd lowest (best) value reported.



- The highest value of CAIFI reported for an individual distribution circuit during 2004 ranged from 1.92 (South Beloit) to 8.24 (AmerenCIPS), as illustrated by Figure 3. As with SAIFI, MEC's highest CAIFI for an individual circuit in 2004 (7.11) was the 3rd highest (worst) reported.



MEC included statements in its reliability report regarding the operating and maintenance history of the 2 circuits it designated as worst performing circuits, Circuits 13-46-1 and 13-PM-2, and listed corrective actions, taken or planned:

MEC stated it patrolled Circuit 13-46-1, which was a worst performing circuit due to SAIFI and CAIFI, and initiated projects to replace deteriorated poles and hardware at multiple locations, and to install overhead fault indicators to assist in fault locating. MEC stated the last scheduled circuit inspection for this circuit was completed in 1998, and the next is scheduled in 2008. Staff is pleased that MEC has patrolled this circuit and taken action to improve service to the customers supplied by Circuit 13-46-1. Staff is especially supportive of MEC's use of overhead fault indicators to help with fault locating.

Circuit 13-PM-2 was MEC's worst performing circuit due to CAIDI. MEC stated that a single customer on this circuit experienced a long outage during a severe wind storm, and that no reliability improvements are planned. Staff finds MEC's lack of action on Circuit 13-PM-2 to be reasonable, since there was only one customer-interruption.

Staff's Circuit Inspections

On June 6 and 7, 2005, Staff inspected three of MEC's distribution circuits that had higher than average SAIFI indices during 2004. A MEC representative accompanied Staff during these inspections.

While most of MEC's distribution facilities appeared to be adequately maintained, Staff noted locations with tree contacts, deteriorated or damaged facilities, and National Electrical Safety Code ("NESC") clearance violations during its inspection. The items Staff noted during the inspections as reliability concerns were discussed with the MEC representative that accompanied Staff and were also summarized and sent to MEC in a follow-up communication (see Attachment A). Additional information regarding each of the circuits that Staff inspected follows:

- *Circuit 13-104-2 (13.2 kV): (SAIFI=3.81; CAIDI=76; CAIFI=3.78)*

Circuit 13-104-2, which supplies electricity to a rural area southwest of Rock Island and east of the communities of Andalusia and Edgington, was not a worst performing circuit during 2004, but it had SAIFI and CAIFI values higher than MEC's system values, which were 2.03 and 2.72, respectively. MEC provided Staff with a copy of its most recent inspection of this circuit, completed in December of 1997. Staff noted that, while MEC's 1997 inspection appeared to be very thorough, eight years had passed since that inspection, which is ample time for the condition of distribution facilities to significantly change.

Of the 23 interruptions that occurred on this circuit during 2004, MEC reported that 12 were weather-related, 5 were caused by the public, 3 were animal-related, and 3 were caused by failure of overhead equipment. MEC reported no tree-caused interruptions. MEC stated tree trimming was last completed in January 2002, and was scheduled again for 2005.

Staff's 2005 inspection identified several locations where threats to reliable service were visible. For example, during its inspection, Staff noted several locations where trees were contacting or very close to the conductor (Photos 1 & 2).

Photo 1: Tree grown between primary and neutral wires (13-104-2)



Photo 2: Oak tree contacting primary conductor (13-104-2)



Staff also noted more than a dozen locations where pole tops and/or cross arms were splitting or deteriorated (examples shown in Photos 3-6).

Photo 3: Split arm (13-104-2)



Photo 5: Damaged pole top (13-104-2)



Photo 4: Split arm & fallen pin (13-104-2)



Photo 6: Splitting pole top (13-104-2)



Staff noted 2 locations where MEC's facilities were in violation of NESC clearance requirements, and Staff was very pleased with MEC's prompt response to eliminate the violation at both locations. Staff was also pleased to find that most distribution transformer installations on Circuit 13-104-2 included animal protection. Staff was concerned, though, at finding tree contacts and deteriorated facilities at so many locations on the circuit. In addition to trimming trees, MEC should perform its own inspection and/or patrol of this circuit and perform maintenance at the many locations where its facilities are in a deteriorated condition.

- *Circuit 13-38-3 (13.2 kV): (SAIFI=4.68; CAIDI=33; CAIFI=4.66)*

Circuit 13-38-3 supplies customers in Rock Island. For calendar year 2004, Circuit 13-38-3 had SAIFI and CAIFI values that were significantly higher than MEC's system values, but was not listed as a worst performing circuit. MEC reported 35 sustained interruptions on this circuit during 2004: it attributed 17 of the 35 to animals. In addition 9 interruptions were weather-related, 4 due to overhead equipment failures, 3 related to trees, and 2 were categorized as "other". MEC stated it last completed its own inspection of Circuit 13-38-3 in 1995, and that it plans to inspect Circuit 13-38-3 next in 2005, with associated follow-up corrective action to be completed in 2006. MEC last completed tree trimming on the circuit in May of 2003.

When inspecting Circuit 13-38-3, Staff observed many distribution transformers that did not have animal guards installed, possibly explaining the high percentage of animal related interruptions during 2004. Many facilities are located along back lots and are not visible from streets. Staff noted 12 locations where a threat to reliable service was visible, 9 of which involved vegetation (Photos 7-8). Staff also observed 2 split poles and a down-guy detached from its anchor.

Photo 7: Tree through primary (13-38-3)



Photo 8: Vines to primary (13-38-3)



- *Circuit 13-46-1 (SAIFI=7.20; CAIDI=67; CAIFI=7.11)*

Circuit 13-46-1 (13.2 kV) supplies electricity to urban and rural areas in and around Carbon Cliff: a community east of Moline. Circuit 13-46-1 was a worst performing circuit due to SAIFI during 2004. Of the 52 interruptions on this circuit during 2004, 26 were weather related, 12 interruptions were animal related, 4 were tree related, 4 were due to overhead equipment failure, and 6 were categorized as "other". MEC stated it patrolled Circuit 13-46-1, and plans to complete follow-up corrective actions in 2005. MEC completed its last inspection of Circuit 13-46-1 in 1998. MEC stated it last completed tree trimming on Circuit 13-46-1 in December of 2002, and has tree trimming scheduled again during 2005.

During its inspection of Circuit 13-46-1 Staff noted trees contacting the primary at five separate locations (Photo 9), and noted other problems at 4 additional locations: a failing cross arm (Photo 10); a loose pole-top pin; two lightning damaged poles (Photo 11); and primary that had been dead-ended without any guying. Staff also noted that animal guards had been installed on some, but not all, of the overhead distribution transformers in residential neighborhoods that seemed likely to support a squirrel population.

Photo 9: Pine with tips of branches burning on primary (13-46-1)



Photo 10: Failing cross arm (13-46-1)



Photo 11: Pole top damaged by lightning (13-46-1)



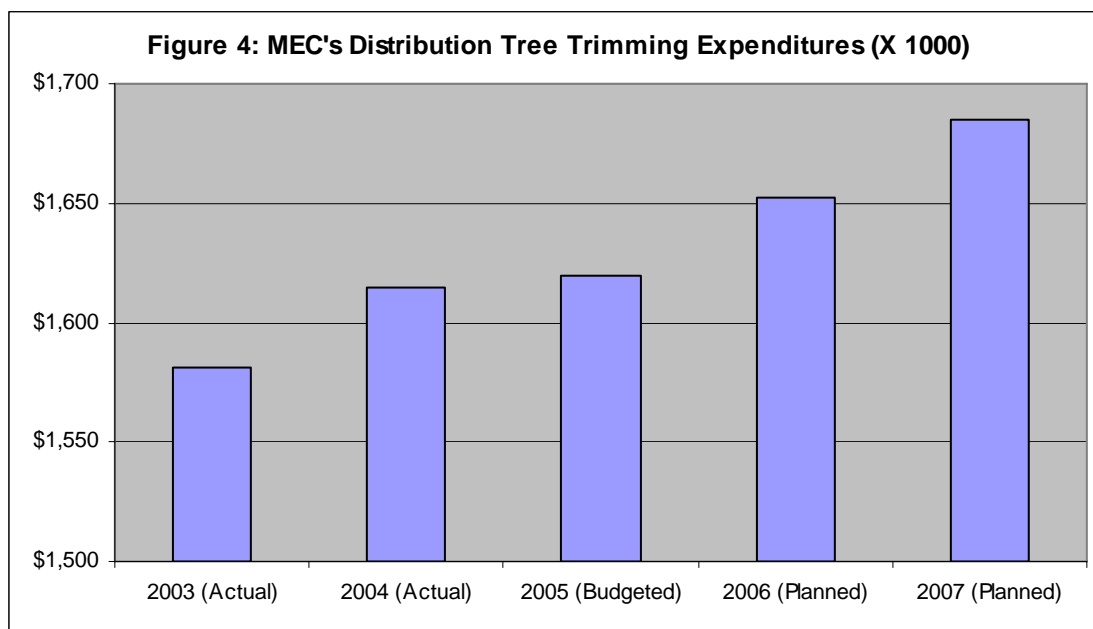
Since MEC had recently finished its own patrol, Staff was surprised to find trees still contacting the primary at 5 locations. Staff believes that this circuit would perform much more reliably if MEC would consistently keep trees from contacting the primary, install more animal guards, and perform facility maintenance at a few isolated locations.

Tree Trimming:

MEC indicated it maintains a tree-trimming cycle of between 3 and 4 years for its Illinois territory. 83 Illinois Administrative Code Part 305 requires MEC to comply with Section 218 of the NESC. Section 218 of the NESC requires that MEC keep trees from interfering with its power lines. Staff performed a separate inspection of tree conditions in portions of MEC's service territory on May 18, 2005. As a result of that inspection, Staff concluded that generally MEC was doing an adequate job keeping trees clear from its lines in most areas. However, MEC needs to deal with specific trees in certain areas that appear to be contacting the primary between normal tree trimming cycles. MEC needs to determine whether these trees require more frequent or more aggressive trimming (See Attachment B).

MEC indicated its customers experienced 244 tree related interruptions during 2004, compared to 220 in 2003. Staff is discouraged by this increase in tree related interruptions, and by the number of tree contacts observed when inspecting MEC's circuits. Staff believes that interruptions categorized as "weather related" and/or "unknown" are sometimes caused by trees. MEC indicated that there were 49 more interruptions categorized as weather related in 2004 than in 2003, but that there were 30 fewer interruptions categorized as "unknown". Combining the categories together, the percentage of MEC's interruptions attributed to trees, weather, and unknown increased by nearly 5% from 2003 to 2004.

Figure 4 illustrates MEC's actual expenditures for tree trimming for the years 2003 and 2004, and its budgeted/planned tree trimming expenditure for 2005-2007. Staff is hopeful that MEC's expenditures for tree trimming in 2005 and beyond will result in a tree trimming program that eliminates tree contacts such as Staff observed when inspecting MEC's circuits. Staff plans to continue evaluating MEC's effectiveness at keeping trees clear of its power lines in Illinois.

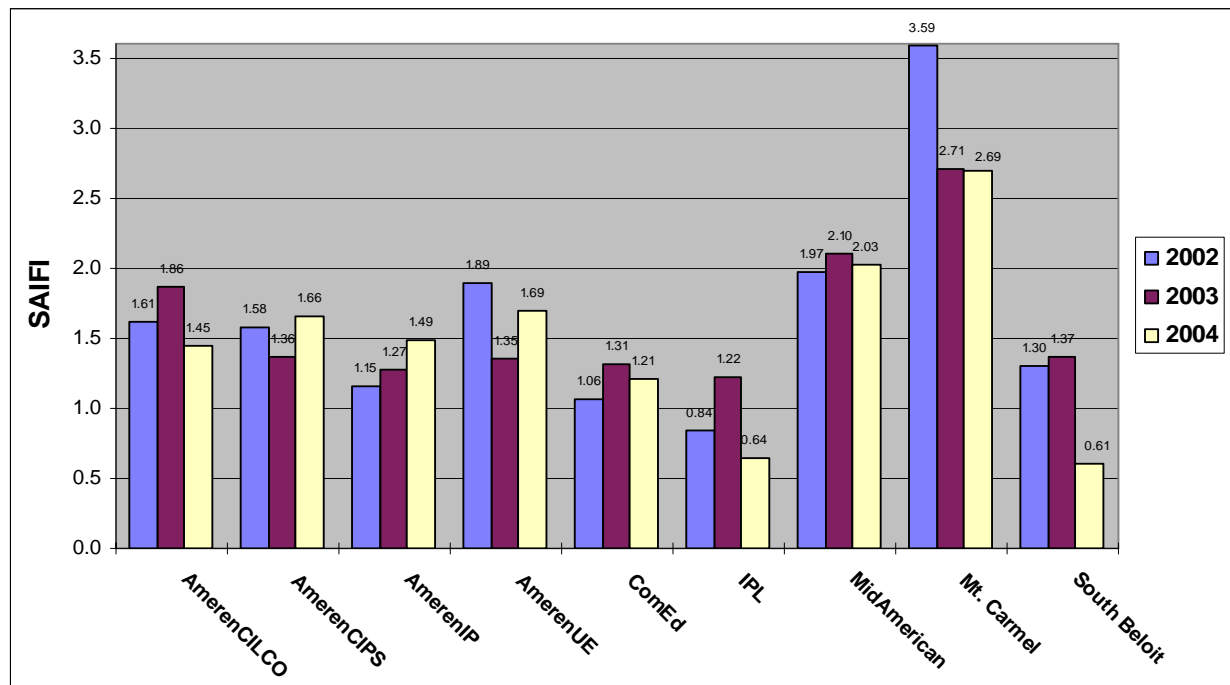


8. Trends in Reliability Performance

A summary of trends in MEC's reliability performance follows:

- *SAIFI*: Figure 5 shows system SAIFI values for years 2002-2004 for reporting electric utilities:

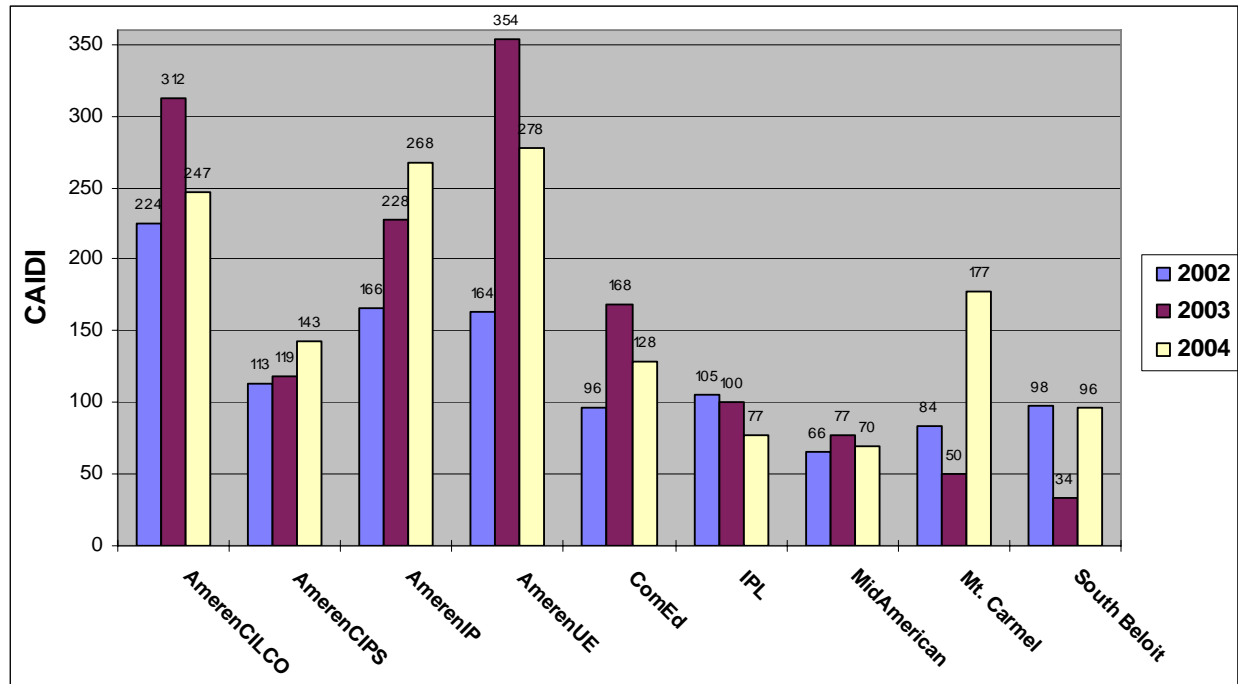
Figure 5: SAIFI by Utility



- In 2002, MEC's SAIFI was about 21% higher than the average of the SAIFI values reported by the eight other reporting utilities (MEC's 2002 SAIFI=1.97).
 - In 2003, MEC's SAIFI increased approximately 6%, and was about 35% higher than the average of the SAIFI values reported by the eight other reporting utilities (MEC's 2003 SAIFI=2.10).
 - In 2004, MEC's SAIFI decreased about 3% from its 2003 value, but was still about 42% higher than the average of the SAIFI values reported by the eight other reporting utilities (MEC's 2004 SAIFI=2.03).
- *CAIDI*: Figure 6 shows system CAIDI values for years 2002-2004 for reporting electric utilities:
 - In 2002, MEC had the lowest (best) CAIDI reported: approximately 50% lower than the average of the CAIDI values reported by the eight other reporting utilities (MEC's 2002 CAIDI=66).
 - In 2003, MEC's CAIDI increased (worsened) by approximately 16%, but was still about 55% lower than the average of the CAIDI values reported by the eight other reporting utilities (MEC's 2003 CAIDI=77).

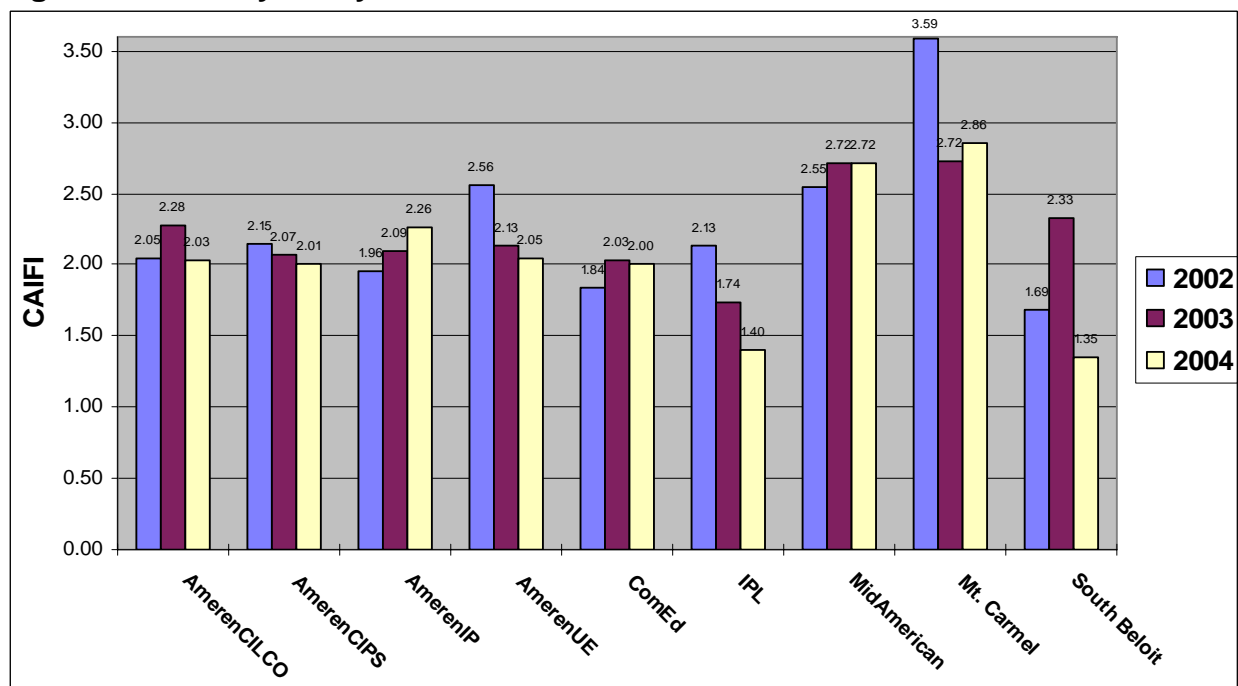
- In 2004, MEC's CAIDI decreased (improved) by approximately 9%, and was again the lowest reported: about 60% lower than the average of the CAIDI values reported by the eight other reporting utilities (MEC's 2004 CAIDI=70)

Figure 6: CAIDI by Utility



- *CAIFI*: Figure 7 shows system CAIFI values for years 2002-2004 for reporting electric utilities:

Figure 7: CAIFI by Utility



- In 2002, MEC's CAIFI was about 14% higher than the average of the CAIFI values reported by the other eight utilities (MEC's 2002 CAIFI=2.55).
- In 2003, MEC's CAIFI increased approximately 6%, and was about 25% higher than the average of the CAIFI values reported by the other eight utilities (MEC's 2003 CAIFI=2.72).
- In 2004, MEC's CAIFI stayed about the same as its 2003 value and was about 36% higher than the average of the CAIFI values reported by the eight other reporting utilities (MEC's 2004 CAIFI=2.72).

A comparison between the changes in MEC's reliability indices from 2003 to 2004 to changes in the average of the indices from all reporting utilities further illustrates MEC's relative performance:

- MEC's SAIFI decreased 3%; the average of the SAIFI values from all reporting utilities decreased 7%.
- MEC's CAIDI decreased 9%; the average of the SAIFI values from all reporting utilities increased 3%.
- MEC's CAIFI stayed about the same; the average of the SAIFI values from all reporting utilities decreased 7%.

It is Staff's view that MEC's general reliability performance as indicated by its reliability indices has not changed appreciably during the period 2002 to 2004. MEC has consistently reported admirable CAIDI values, but MEC's SAIFI and CAIFI values have been significantly worse than the average reported by the other utilities.

Interruptions to Individual Customers

MEC's 2004 reliability report listed the number of customers that experienced various quantities of interruptions during the year. This information helps Staff to review the level of reliability MEC provided to individual customers.

- *Zero interruptions:* During 2004, 31% of MEC's customers experienced zero interruptions. During 2003 and 2002 this value was 21% and 24%, respectively.
- *3 or Fewer Interruptions:* During 2004, 80% of MEC's customers experienced 3 or fewer interruptions. During 2003 and 2002 this value was 79% and 81%, respectively.
- *More than six Interruptions:* During 2004, 6.4% of MEC's customer experienced more than 6 interruptions. During 2003 and 2002 this value was 3.7% and 1.1%, respectively.

Figure 8 illustrates the percentage of customers for each reporting utility that was affected by zero interruptions, and by 3 or fewer interruptions during 2004.

Figure 8: Percentage of Customers with Zero and 3 or Fewer Interruptions in 2004

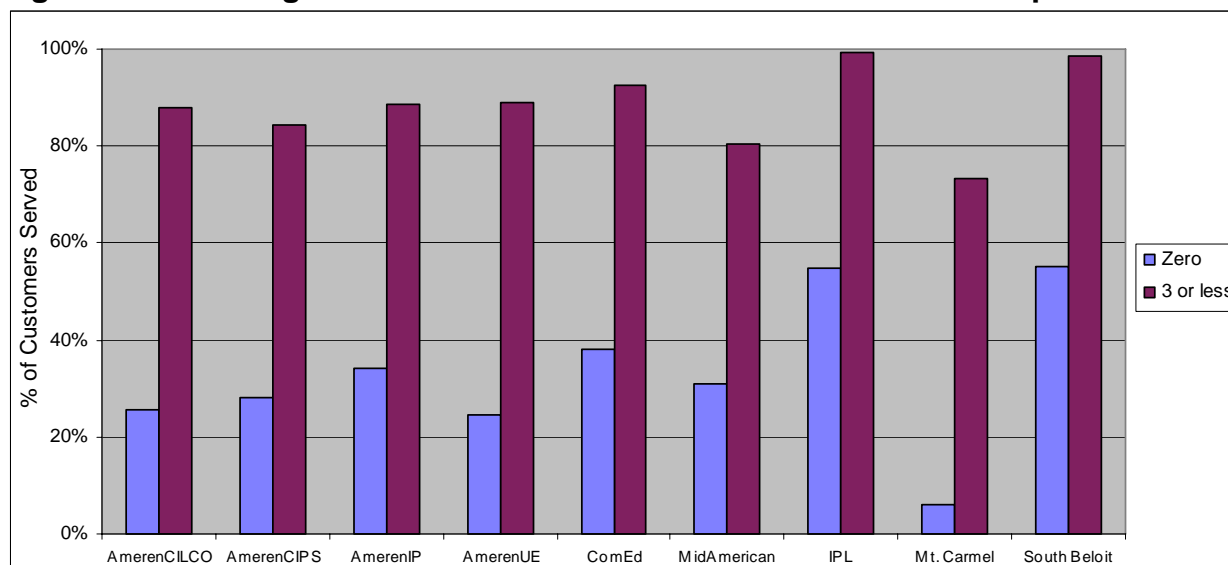


Table 3 indicates, for each reporting utility, the number and percentage of customers that experienced more than 6 interruptions during 2002-2004. Utilities are listed in order of 2004 performance, based on the number of customers experiencing more than 6 interruptions. While the table shows that MEC did not report the highest number of customers experiencing more than 6 interruptions, MEC did have by far the highest *percentage* of customers in this category. As the table shows, 874 MEC customers experienced more than 6 interruptions in 2002, compared to 5331 in 2004. This is an increase of more than 500%. Staff believes MEC could do a much better job minimizing the number of interruptions individual customers experience by initiating corrective measures sooner. Fewer MEC customers should experience more than 6 interruptions in a calendar year, and fewer should experience interruptions that exceed the Part 411 reliability target of more than 6 interruptions for three consecutive years.

Table 3: Customers with more than 6 Interruptions:

| | 2002 | | 2003 | | 2004 | |
|--------------------|------------|--------------|--------------|--------------|--------------|--------------|
| | Customers | | Customers | | Customers | |
| Utility | Number | % of Total | Number | % of Total | Number | % of Total |
| South Beloit | 74 | 0.90% | 8 | 0.10% | 0 | 0.00% |
| IPL | 26 | 0.20% | 0 | 0.00% | 1 | 0.01% |
| Mt. Carmel | 298 | 5.00% | 38 | 0.70% | 85 | 1.48% |
| AmerenCILCO | 2,335 | 1.20% | 5,340 | 2.60% | 1,613 | 0.78% |
| AmerenUE | 1,292 | 2.10% | 624 | 1.00% | 1,724 | 2.76% |
| MidAmerican | 874 | 1.10% | 3,082 | 3.70% | 5,331 | 6.37% |
| AmerenIP | 2,731 | 0.50% | 4,473 | 0.80% | 7,713 | 1.28% |
| AmerenCIPS | 6,343 | 1.90% | 2,662 | 0.80% | 7,846 | 2.38% |
| ComEd | 12,419 | 0.40% | 24,321 | 0.70% | 29,087 | 0.80% |

Utilities can minimize reliability complaints by monitoring interruptions to individual customers on an ongoing basis, and by taking prompt corrective action throughout the year as soon as the same customer(s) experience multiple/lengthy interruptions. To improve service to those customers that experienced interruptions in excess of the reliability targets, MEC indicated it will largely rely upon tree trimming. However Staff believes prompt circuit or partial circuit inspection with prompt follow-up corrective action, which could include tree trimming, would be a better way for MEC to reduce the number of customers experiencing so many repeat interruptions.

Customer Interruption Cause Categories

MEC's interruptions for 2002-2004 attributed to the various interruption categories listed in Table-A of Part 411 is shown in Table 4.¹ Table 4 illustrates that there were more interruptions on MEC's distribution system in 2004 than in 2003 or 2002.

Table 4: MEC's Interruptions by Various Causes

| Interruption Cause | Number of Interruptions | | | Percentage of Interruptions | | |
|---|-------------------------|------|------|-----------------------------|-------|-------|
| | 2004 | 2003 | 2002 | 2004 | 2003 | 2002 |
| Animal Related | 673 | 697 | 490 | 27.4% | 28.7% | 25.0% |
| Weather Related | 628 | 579 | 546 | 25.6% | 23.8% | 27.8% |
| Overhead Equipment Related | 546 | 560 | 386 | 22.3% | 23.1% | 19.7% |
| Tree related | 244 | 220 | 200 | 10.0% | 9.1% | 10.2% |
| Unknown | 104 | 134 | 0 | 4.2% | 5.5% | 0.0% |
| Underground Equipment Related | 87 | 79 | 92 | 3.5% | 3.3% | 4.7% |
| Public | 85 | 83 | 70 | 3.5% | 3.4% | 3.6% |
| Intentional | 43 | 33 | 17 | 1.8% | 1.4% | 0.9% |
| Other | 19 | 23 | 126 | 0.8% | 0.9% | 6.4% |
| Transmission and Substation Equipment | 18 | 8 | 29 | 0.7% | 0.3% | 1.5% |
| Jurisdictional Entity/Contractor Personnel-Errors | 5 | 12 | 5 | 0.2% | 0.5% | 0.3% |
| Customer | 0 | 0 | 0 | 0.0% | 0.0% | 0.0% |
| Other Alternative Supplier/Utility | 0 | 0 | 0 | 0.0% | 0.0% | 0.0% |
| TOTAL (all causes) | 2452 | 2428 | 1961 | 100% | 100% | 100% |

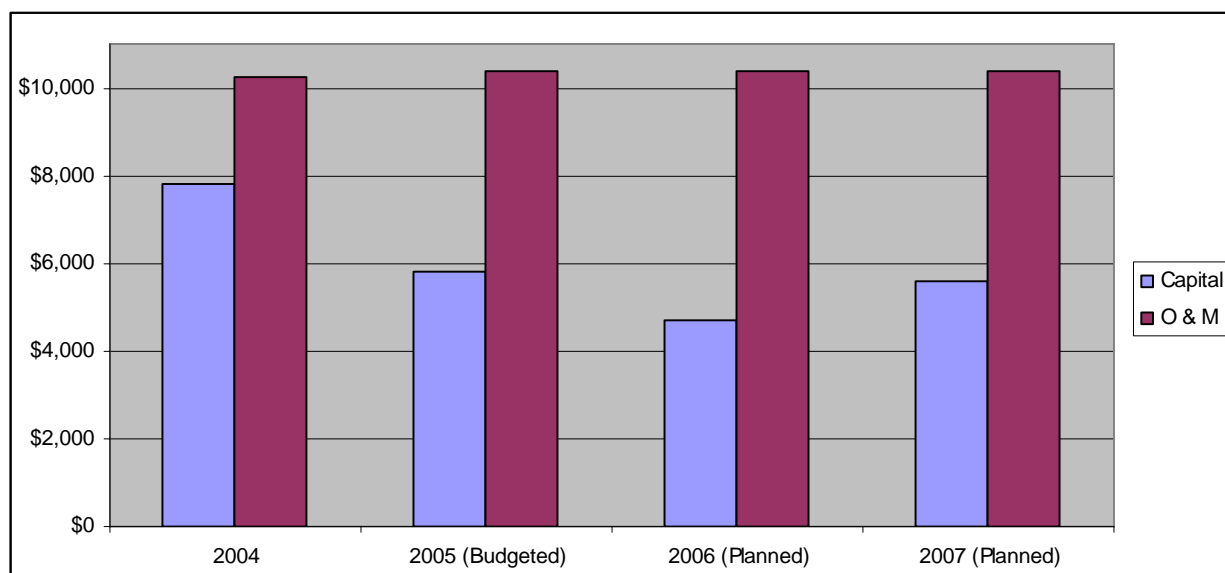
¹ The interruption categories MEC used in its 2002 reliability report did not precisely match those included in Part 411, Table A. For example, MEC appeared to combine the categories of "Other" and "Unknown" in its 2002 report. However, Staff believes a year to year comparison of most of the Table A categories is valid.

MEC indicated animals caused the most interruptions for its Illinois customers during both 2003 and 2004. Weather, the most frequently occurring cause for most utilities, was MEC's 2nd most common interruption cause during 2004. MEC reported that two major storms occurred in its operating area during 2004: on May 30, and on August 3-4. MEC listed overhead equipment as its third most frequent interruption cause for all 3 years. MEC reported more tree related interruptions in 2004 than in either 2002 or 2003.

9. Plan to Maintain or Improve Reliability

MEC anticipates a decrease in distribution capital spending during 2005 through 2007 when compared to 2004 expenditures, as illustrated by Figure 9. MEC stated its projected capital spending is expected to be more similar to pre-2004 levels. MEC explained that it expended nearly 50% more on capital in 2004 than it planned to, according to its 2003 reliability report. This was due to additional costs in underground extensions and services, individual distribution projects, and overhead and underground rebuilds. MEC indicated planned distribution O&M expenditures in 2005-2007 will likely be consistent with 2004 levels.

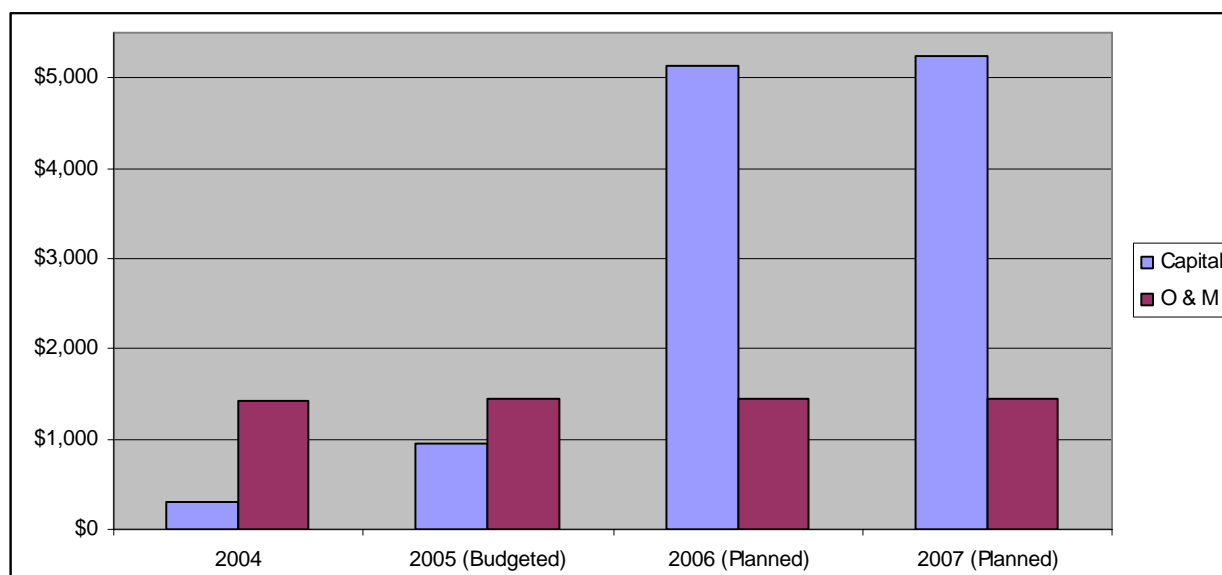
Figure 9: MEC's Distribution Expenditures (\$ X 1000)



MEC's explanation for its planned reduction in capital expenditures seems reasonable to Staff. However, Staff is concerned that MEC's SAIFI and CAIFI reliability indices have been some of the highest reported for several years. Given MEC's existing level of O&M expenditures resulted in relatively numerous interruptions for its customers, it is unclear to Staff how MEC will improve the reliability of its distribution system in future years without an associated increase in O&M expenditures.

Figure 10 illustrates that MEC anticipates a significant increase in transmission capital spending, while maintaining a fairly flat level of transmission O&M spending. MEC's increase in transmission capital spending is explained by a new 345-161 substation that MEC plans to place into service in 2007.

Figure 10: MEC's Transmission Expenditures (\$ X 1000)



In Attachment A to its 2004 reliability report, MEC listed 10 capital projects it included in its budgeting process for the years 2005-2008 that are intended to improve the quality of service to customers. MEC provided its estimated annual expenditures for these projects for each year. In Attachment B to its 2004 reliability report MEC listed several on-going inspection and maintenance programs for its transmission and distribution systems in Illinois. MEC included the following programs in its list for its distribution system: tree trimming, circuit inspection, and inspection of various equipment types such as switches, capacitors, reclosers and regulators. Staff agrees that MEC's special projects and maintenance programs are likely to maintain or improve the reliability of its distribution system.

10. Potential Reliability Problems and Risks

Staff has the following concerns about MEC's distribution system and distribution operations:

- Staff is concerned that MEC had not adequately inspected and maintained its facilities on some distribution circuits that Staff inspected. Staff observed several locations where MEC's distribution facilities appeared deteriorated or damaged. For example, on Circuit 13-104-2 Staff observed locations with deteriorated arms and pole tops, and loose hardware. MEC reported that failure of overhead equipment was the 3rd most common interruption cause during 2004 and the previous two years. MEC is required to inspect its lines and equipment at such intervals as experience has shown is necessary.² Staff concluded that MEC does not inspect its distribution system in a manner that allows MEC to stay aware of its condition. More frequent inspections would give MEC the opportunity to identify and correct problems before interruptions occur.

² National Electrical Safety Code 214(A)

- Staff is concerned by the high percentage of MEC's customers that experienced more than 6 interruptions during 2004. Though Staff is very impressed with MEC's specific projects to improve the reliability of some of its distribution circuits that performed poorly during the prior year, MEC's existing remedial procedures appear to take a long time to affect circuit reliability. Staff encourages MEC to immediately identify and eliminate those threats to reliable service where the associated expense is small, rather than waiting to include the work in a larger capital project to be worked the following year. Staff believes that many of MEC's customers that experience multiple interruptions would experience far fewer interruptions if MEC executed more maintenance-related remedial actions sooner.
- Staff is concerned by the high occurrence of animal related interruptions in MEC's Illinois service territory. While Staff noted a thorough use of animal guards on distribution transformers on Circuit 13-104-2, there were many distribution transformers in other areas without animal protection installed: for example, on Circuit 13-38-3. During 2004, MEC indicated nearly half the interruptions on Circuit 13-38-3 were animal related.
- MEC claims to be trimming trees on less than a four year cycle. Despite this claim, Staff is concerned at finding so many trees close to or contacting MEC's distribution lines during its 2005 circuit inspections. Staff found that MEC has not consistently been trimming trees so that they stay clear of the lines the entire time between tree trimming cycles. Staff believes MEC must trim some trees either more aggressively or more often to eliminate contacts with power lines.

11. Implementation of the Plan Listed in the Previous Reliability Report

MEC spent about 46% more on distribution capital projects and 14% more on distribution O&M projects in 2004 than predicted in its 2003 plan. In Attachment C to its reliability report MEC provided updates on several specific projects that it had described in its 2003 reliability report. Staff found that MEC adequately described and explained deviations from its 2003 plan within its 2004 reliability report.

MEC indicated that its actual capital expenditures on transmission in Illinois were about 19% less than its 2003 plan predicted. MEC indicated this was chiefly due to no funds yet expended on an anticipated new transmission substation and transmission line. MEC spent approximately 45% more on transmission O&M projects in 2004 than expected, based on its 2003 plan.

12. Summary of Recommendations

- MEC should be more proactive with its circuit inspections and remedial work. More effective inspections of its overhead distribution facilities would provide MEC an opportunity to find and correct reliability threats prior to interruption occurrence.
- MEC should develop procedures to accelerate its remedial actions when customer(s) experience multiple interruptions, especially in those cases where the customer(s) have experienced more than 6 interruptions during the same calendar year.

- MEC should install animal protection on more distribution transformers. For example, when a tap fuse blows due to squirrel activity at a distribution transformer, MEC should consider installing animal protection on multiple transformers on the tap; not just the transformer where the squirrel is found.
- MEC's tree trimming personnel should consistently clear trees away from power lines so that the trees will not grow or blow into the lines prior to being trimmed again.

From: Rockrohr, Greg
Sent: Monday, June 27, 2005 4:11 PM
To: @ Jared, Robert
Cc: 'sfmcgovern@midamerican.com'; Stoller, Harry; Buxton, Roy
Subject: Staff inspection of MidAmerican distribution circuits

Attachments: 2005_MEC Summary of Field Inspection.xls

On June 6 & 7, I inspected 3 distribution circuits that MidAmerican operates in Illinois. MidAmerican's Sean McGivern accompanied me during the inspections, and I appreciated his cooperation very much.

The attached worksheets summarize notes I took during the inspections. These worksheets are not represented as capturing all of the potential reliability problems that may exist on the circuits that I inspected. In many cases, there were portions of the circuits that I did not see. My inspections are not intended to take the place of the thorough, detailed inspections that your company should periodically perform.

I noted two apparent National Electric Safety Code ("NESC") clearance violations on Circuit 13-104-2 (in bold font) that require follow-up:

1. Low primary & neutral wires: 58 Street W, north of 118 Ave. W (on tap near end of 58 Street W.)
2. Low neutral conductor: 120 Ave. W - W/56 St. W (along 1st tap to north)

For both locations, please provide the actual measured height of the conductor above the ground (at its closest point). If the vertical clearance is found to be less than that shown in NESC Table 232-1(4), please provide MidAmerican's plan, including a schedule, for modifying the distribution facilities so that they comply with the NESC requirements. Please provide this information no later than July 29, 2005.

If you have any questions about the information contained in the attached summaries, or the information requested above, please contact me.

Greg Rockrohr
Illinois Commerce Commission
Engineering Department -Energy Division
217-524-0695

| Summary of Distribution Circuit Field Inspection by ICC Staff | | | |
|--|---|------------|--|
| Utility: | MidAmerican | Date: | 6/6/05 |
| Circuit: | 13-104-2 | Inspector: | Rockrohr (ICC)/McGivern (MEC) |
| Gen. Notes: Rock Island County rural area. Tree trimming last completed January 2002, scheduled again in 2005. Tree trimming looked good most locations. Animal guards installed on most trf. Some new poles. Fairly regular lightning arrester placement. MEC last inspection in 1997. 2004 Next 10 worst performing circuit -weather listed as most frequent outage cause | | | |
| Map No. | Item Description | Photo(s) | Location |
| 30 | Split cross arm | 2 | 42 St. W -N/127 Ave. W |
| 30 | Trees very close to primary | N/A | 42 St. W -N/127 Ave. W |
| 37 | Splitting pole top | 4 | 42 St. W -N/127 Ave. W |
| 37 | Tree limb between primary & neutral conductor | 3 | 42 St. W -N/127 Ave. W (near end /42nd) |
| 19 | Pole failing (tagged to be replaced) | 5 | 134 Ave. W -E/42 St. W |
| 12 | Splitting pole top & leaning | 6 | 42 St. W -S/134 Ave. W |
| 12 | Pri. insulator brkt twisted and neutral brkt loose | 7 | 42 St. W -S/134 Ave. W (about 1/2 way on tap) |
| 19 | Lightning damaged pole top (pole with arrester) | 8 | 42 St. W -S/134 Ave. W (about 1/3 way on tap) |
| 35 | Pole splintering | N/A | 56 St. W -S/120 Ave. W |
| 35 | Neutral pin fell through cross arm | N/A | 120 Ave. W - W/56 St. W |
| 35 | Possible NESC violation: low neutral conductor | N/A | 120 Ave. W - W/56 St. W (on 1st tap to north) |
| 53 | Beehive attached to bottom of transformer (active) | 9 | End of lane E/51 St W. & N/118 Ave. W |
| 53 | Neutral pin fell through cross arm | 10 | 51 St. W -Near end of tap that is N/118 Ave. W |
| 53 | Rotted cross arm | 11 | 51 St. W -Near end of tap that is N/118 Ave. W |
| 41 | Corner pole split at primary dead end | 12 | 56 St. W -N/118 Ave. W |
| 47 | Gooseneck insulator bracket twisted badly | N/A | 1st tap E/ 58 St. W & N/118 Ave. W |
| 58 | NESC violation: Low span burning in tree | 13 & 14 | 58 St. W -Last OH tap to west on tap N/118 Ave. W |
| 32 | Splitting pole -slight angle | 15 & 16 | 120 Ave. W at 81 St. W |
| 63 | Split pole top with leaning pin | 17 | 88 St. W -N/95 Ave. W |
| 68 | Split cross arm | 18 | 88 St. W -N/95 Ave. W (east side of road near end) |
| 15 | Split cross arm | 19 & 20 | 70 St. W at 133 Ave. W |
| 40 | Blown lightning arrester | N/A | Turkey Hollow Rd. btw 110 Ave. W & 120 Ave. W |
| 51 | Split cross arm with primary insulator pin fallen | 21 - 23 | Turkey Hollow Rd. N/110 Ave. W |
| 62 | Woodpecker holes near pole top pin | 24 | 95 Ave. W -E/Turkey Hollow Rd. (3rd pole from end) |
| 66 | Cross arm failing | 25 & 26 | 93 Ave. W -E/ Turkey Hollow Rd. (short tap to north) |
| 67 | Trees contacting primary | 27 & 28 | 93 Ave. W -E/ Turkey Hollow Rd. |
| 64 | Pine trees very close to primary | 29 | 77 St W -N/92 Ave W |
| 70 | Pine tree growing into primary | 30 | Tap to NW off Turkey Hollow, S/ 85 Ave. W |

| Summary of Distribution Circuit Field Inspection by ICC Staff | | | |
|--|----------------------------|------------|--|
| Utility: | MidAmerican | Date: | 6/6/2005 & 6/7/2005 |
| Circuit: | 13-38-3 | Inspector: | Rockrohr (ICC)/McGivern (MEC) |
| Gen. Notes: Rock Island urban/residential area. Tree trimming last completed May 2003. Trees observed contacting primary in several locations. Many trfs. without animal guards. MEC last inspection in 1995, scheduled for 2005. Much of cct is backlot -not visible from streets. 2004 Next 10 worst performing circuit -animal and weather listed as most frequent outage causes | | | |
| Map No. | Item Description | Photo(s) | Location |
| 2442-0554 | Tree contacting primary | 2 | Rear of 2400 block of 26th St. -along cemetery property line |
| 2445-0554 | Tree contacting primary | 3 & 4 | 30 St. S/25 Ave. (near SE corner of intersection) |
| 2445-0554 | Red maple into primary | N/A | 3210 24 Ave. |
| 2445-0552 | Tree contacting primary | 7 | Behind 2909 27 Ave. |
| 2451-0552 | Tree contacting primary | 8 & 9 | 29 Ave. W/47 St. Ct. |
| 2451-0552 | Severely split pole top | 10 | Behind 2841 45 St. |
| 2448-0556 | Vines to primary level | 11 | Alley N/23 Ave & E/ 43 St. |
| 2448-0556 | Tree contacting primary | N/A | 3926-3930 22 Ave. |
| 2448-0552 | Tree contacting primary | N/A | Behind 2901 36 St. |
| 2448-0552 | Down guy is missing anchor | N/A | 29 Ave. -opposite #4212/4220 |
| 2451-0556 | Pole cracked top to bottom | N/A | South side/ 20 Ave. at alley between 44 & 45 St. |
| 2451-0556 | Tree very close to primary | N/A | Behind 2043 45 St. |

| Summary of Distribution Circuit Field Inspection by ICC Staff | | | |
|---|--|------------|--|
| Utility: | MidAmerican | Date: | 6/7/05 |
| Circuit: | 13-46-1 | Inspector: | Rockrohr (ICC)/McGivern (MEC) |
| Gen. Notes: E. Moline - Carbon Cliff. Tree trimming last completed December 2002. Trees observed contacting primary at a few locations. Semi-rural in areas, with some areas urban residential. MEC last inspection in 1998, patrolled February 2005. 2004 Worst performing circuit -weather and animal listed as most frequent outage causes. Fair animal guard coverage. | | | |
| Map No. | Item Description | Photo(s) | Location |
| 9 | Failing cross arm | 2 | Tap W/Friendship Farm Rd -near end/Jean St. |
| 4 | 2 poles with apparent lightning damaged | 3 & 4 | River Rd S/Coal Town Rd. -where road turns west at |
| 6 | Tree contacting primary | N/A | Lane N/Coal Town Rd. -E/River Rd. intersection |
| 6 | Tree contacting primary | 5 & 6 | Lane N/Coal Town Rd. -W/River Rd. intersection |
| 11 | Pine trees contacting primary | 7 | Behind 1105 26 Ave. Ct. (E/10 St.) |
| 14 | Tree contacting primary | N/A | 10 St. S/B St. |
| 22 | Primary not guyed after line partially removed | 8 & 9 | 1 Ave. -far north end (inside public works yard near RR) |
| 22 | Loose pole top pin | 10 | Cliff Dr. -S/Cliff Ct. |
| 16 | Tree contacting primary | N/A | Merry Oaks Ln. -btw Frontage Rd. & Merry Oaks Ct. |

MEMORANDUM

TO: Roy Buxton, Engineering Department Manager

FROM: Jim Spencer, Senior Electrical Engineer

DATE: July 13, 2005

RE: Tree Conditions in MidAmerican Energy Company's Illinois Service Territory

1. Introduction

On May 18, 2005, Greg Rockrohr and I performed random inspections of tree conditions near MidAmerican Energy Company (MEC) electric lines in MEC's Illinois service territory. We performed the inspections by driving around the areas chosen and looking at trees near MEC overhead electric lines without regard to circuit identification and without the use of circuit maps. This memorandum documents the results of the field inspections and my assessment of the state of tree trimming on that date in Rock Island, Milan, Moline, East Moline, and Silvis, Illinois (all served electrically by MEC).

Staff's most recent general inspections of tree conditions in MEC's Illinois service territory prior to the 2005 inspections were performed on September 19, 2002. The results of those earlier inspections are documented in my memorandum to you dated October 22, 2002.

2. Findings

Overall, I found tree trimming throughout most of the MEC service territory I inspected to be well done. I believe the results of MEC's tree trimming program now to be similar, if not slightly better, than what I observed during the 2002 inspections (I thought MEC's tree trimming was superior at that time to that of several other utilities inspected). I still found some problem areas, however, which I noted and photographed. These relatively small isolated areas contained several tree conflicts with MEC's primary conductors, including several instances of tree contacts with the energized wires evidenced by burning of the trees. I have summarized my field notes of this inspection in the spreadsheet labeled "Summary of Tree Conditions Field Inspection by ICC Staff" at the end of this memorandum.

My overall assessment of tree trimming conditions in each of the communities inspected, including example photographs of some of the tree conflicts noted, is contained in the remainder of this memorandum.

Most of Rock Island was well trimmed, but there were some isolated tree conflicts, mostly on 38th Street between 8th and 14th Avenues. Another particularly bad location was on 17th Street at the entrance to the Trinity West Medical Center. Two examples of those tree conflicts are shown in Figures 1 and 2.

Figure 1 (Photo 05K19)

**3-phase primary burning oak trees
17th St. at entrance to Trinity West Medical Center, Rock Island**



Figure 2 (Photo 05K24)

**Trees growing into primary
38th St. just north of 11th Ave., Rock Island**



I did not note any tree conflicts in Milan, on the south side of Rock River.

Tree trimming in most of the central area of Moline looked very well done, but there were several conflicts on both the west and east sides of town. Particularly bad areas were along and close to 14th Street from 13th to 20th Avenues on the west side of town and at several locations along most of the length of 53rd Street on the east side of town. Figures 3 through 8 show a few examples of the tree conflicts noted in Moline.

Figure 3 (Photo 05L11)

**Soft maple trees into and through 3-phase primary
14th St. between 17th & 18th Aves., Moline**



Figure 4 (Photo 05L12)



Figure 5 (Photo 05L13)

**Ash trees into and through 3-phase primary
14th St. at 17th Ave., Moline**



Figure 6 (Photo 05L17)
Tree into 3-phase primary, with burning
21st St. just north of 5th Ave., Moline



Figure 7 (Photo 05L19)

Oak tree burned by 3-phase primary
In the alley between 33rd & 34th Aves., west of Sunset Dr. (53rd St.), Moline



Figure 8 (Photo 05L20)



I noted tree contacts with MEC's primary at only two locations in East Moline, with a few other close locations noted. Tree trimming looked good in Silvis, with only one close clearance location noted. Figure 9 shows one of the tree conflicts in East Moline.

Figure 9 (Photo 05L23)
3-phase primary “electrotrimming” tree
19th St. south of 9th Ave., East Moline



Again, these problem areas represent only a small portion of MEC's total service territory in Illinois, and I found the tree conditions in most of MEC's Illinois territory to be very satisfactory. MEC should investigate the problem areas mentioned and determine the cause for the apparent inconsistency of tree trimming in these areas with its otherwise good tree trimming program. It should also take steps to correct these areas and to prevent recurrence of the problem.

3. Recommendations

- MEC should investigate the problem areas discussed in this memorandum to determine the cause of inconsistency of tree trimming in these areas with the rest of its tree trimming program in Illinois.
- MEC should resolve all existing tree clearance problems in its Illinois service territory as soon as possible.
- MEC should assure that all trees in its Illinois service territory are trimmed such that there are no tree contacts with its energized primary conductors before it returns to trim them again.

| Summary of Tree Conditions Field Inspection by ICC Staff | | | |
|---|--|-------------------|---|
| Utility: | MidAmerican Energy Company (MEC) | Date: | 5/18/05 |
| Circuits: | Random | Inspector: | J. D. Spencer, Greg Rockrohr |
| Gen. Notes: Tree trimming in most of the MEC Illinois service territory inspected was well done, with relatively small isolated areas of conflicts. | | | |
| Town | Item Description | Photo(s) | Location |
| Rock Island | | | |
| | 3-phase primary burning oak trees | K19, K20 | 17th St. at entrance to Trinity West Medical Center |
| | Hard maple trees close to primary | | 30th St. north of 25th Ave. |
| | Locust trees very close to primary | | 30th St. between 7th & 8 1/2 Aves. |
| | Trees (mulberry?) growing into primary | K21, K22 | 38th St. just south of 13th Ave. |
| | Trees growing into primary | K23, K24 | 38th St. just north of 11th Ave. |
| | Trees growing into primary | L1, L2 | 38th St. north of 11th Ave. |
| Moline | | | |
| | Oak tree burned by primary | L3, L4, L5 | 3rd St between 13th & 13th Aves. (jog in 13th Ave.) |
| | Maple tree very close to primary | | 5th St. between 25th & 26th Aves. |
| | Maple trees very close to 1-phase primary | | 20th Ave. just east of 14th St. |
| | Spruce tree growing into primary | L6 | North of 19th Ave. in the alley east of 14th St. |
| | Soft maple tree into primary | L7, L8 | 18th Ave. just east of 14th St. |
| | Soft maple trees into & through primary | L9, L10, L11, L12 | 14th St. between 17th & 18th Aves. |
| | Ash tree into & through primary | L13 | 14th St. between 17th & 18th Aves. (at 17th Ave.) |
| | Trees into 3-phase primary | L14, L15, L16 | 13th Ave. just west of 14th St. |
| | Tree into primary, with burning | L17 | 21st St. just north of 5th Ave. |
| | Trees close to primary | | 34th St. between 11th & 12th Aves. |
| | Soft maple trees into primary | L18 | 34th St. north of 10th Ave. |
| | Trees close to primary | | 41st St. north and south of 6th Ave. |
| | Trees very close to primary | | 41st St. north and south of 34th Ave. |
| | Trees close to primary | | 38th Ave. (CH 21 EXT) east of 49th St. |
| | Oak tree burned by 3-phase primary | L19, L20 | In the alley between 33rd & 34th Aves., west of Sunset Dr. (53rd St.) |
| | Primary burning trees | | North & west of prior location, in the Memorial Park Cemetery area |
| | Primary burning maple tree | | 53rd St. between 28th & 30th Aves. |
| | Primary "electrotrimming" tree | | 53rd St. between 25th & 26th Aves. |
| | Ash tree into 3-phase primary | L21 | 53rd St. just north of 19th Ave. |
| | Soft maple tree growing into primary | | 11th Ave. east of 53rd St. |
| | Tree growing into 1-phase primary | | North of 5th Ave. & west of 56th St. |
| East Moline | | | |
| | Trees very close to primary | | 7th St. & 30th Ave. |
| | Trees very close to primary | | 7th St. & 25th Ave. |
| | Trees very close to primary | | Along 17th Ave. between 8th & 11th Sts. |
| | Hard maple tree growing into 3-phase primary | L22 | 13th St. between 20th Way & 21st Ave. |
| | Trees close to primary | | Archer Dr. north of 23rd Ave. |
| | Trees close to primary | | 30th Ave. between Archer Dr. & 19th St. |
| | Tree into primary ("electrotrimming") | L23, L24 | 19th St. south of 9th Ave. |
| | Trees close to primary | | 19th St. north of 5th Ave. |
| | Cottonwood tree close to primary | | 3rd Ave. (CH 3 EXT) between 27th & 36th Sts. |
| | Trees close to primary | | Along 4th Ave between 36th St. & 172nd St. |
| Silvis | | | |
| | Trees close to primary | | Crosstown Ave. west of 10th St. |